

STATE OF VERMONT
PUBLIC SERVICE BOARD

Docket No. 6975

Petition of Green Mountain Power Corporation)
for a certificate of public good authorizing the)
permanent installation of a 3-phase 3.75/5 MVA)
transformer adjacent to its Middlesex Substation)
#2 located in Moretown, Vermont)

Order entered: 8/9/2004

I. INTRODUCTION

This case involves a petition filed by Green Mountain Power Corporation ("GMP") on May 10, 2004, requesting issuance of a certificate of public good ("CPG") by the Vermont Public Service Board ("Board"), pursuant to 30 V.S.A. § 248(j), for the permanent replacement of the existing bank of three 1.333 MVA single-phase transformers at its Middlesex Substation #2 with a single 3.75/5 MVA three-phase transformer adjacent to the Middlesex Hydroelectric parking lot and in close proximity to, but outside of, the Middlesex Substation #2 . On April 7, 2004, in Docket No. 6941, GMP obtained approval from the Board, pursuant to 30 V.S.A. § 248(k), for the emergency installation of a 3.75/5 MVA three-phase transformer "on temporary timbers" at the permanent location proposed in this Docket (No. 6975) after internal problems were diagnosed in one of the existing single-phase transformers. The subject of this Docket is the permanent installation of the 3.75/5 MVA three-phase transformer at its current temporary location and the associated construction of a concrete basin oil-containment facility, placement of a chain link fence around the site, and removal of the remaining single-phase transformers and their steel support structure (collectively, the "Project").

On May 18, 2004, the Board requested additional information from GMP to clarify the petition prior to the Board notifying the entities listed in 30 V.S.A. § 248 (a)(4)(C). On June 18, 2004, the Board received the information that it had requested from GMP. Notice of the filing in this Docket was sent on July 2, 2004, to all parties specified in 30 V.S.A. § 248(a)(4)(C) and all

other interested parties. The notice stated that any party wishing to submit comments as to whether the petition raises a significant issue with respect to the substantive criteria of 30 V.S.A. § 248 needed to file its comments with the Board on or before August 5, 2004. In addition, notice was published in the *Times Argus* on July 8 and July 15, 2004, stating that any party wishing to submit comments as to whether the petition raises a significant issue with respect to the substantive criteria of 30 V.S.A. § 248 needed to file comments with the Board on or before August 5, 2004.

On August 5, 2004, comments were received from the Department, which stated that the petition, as described in the testimony filed by GMP on May 10, 2004, as well as the supplemental testimony filed on June 18, 2004, does not appear to raise any significant issues with respect to the substantive criteria of 30 V.S.A. § 248. The Department does not request a hearing.

The Board has reviewed the petition and accompanying documents and agrees that, pursuant to 30 V.S.A. § 248(j), a CPG should be issued without the notice and hearings otherwise required by 30 V.S.A. § 248.

II. FINDINGS

Project Description

1. On March 26, 2004, GMP became aware that one of the three 1.333 MVA single-phase transformers in the three-phase bank at Middlesex Substation #2 had internal problems, most likely shorted secondary turns. GMP's records showed that the failing transformer was of 1928 vintage. GMP conducted an engineering evaluation and concluded that complete failure of the transformer was likely to occur within several weeks after discovery of the problem. The age of the other two transformers in the bank was also beyond their useful life and those transformers would be subject to failure if stressed by the loss of the failing transformer. Arthur pf. at 1.

2. As a temporary measure to prevent a loss of power to approximately 130 customers in the Moretown/Middlesex area, on April 1, 2004, GMP connected its 3.75 MVA Mobile Substation to the 34.5 kV system on the primary side of the mobile transformer, and to an extension of the 2H2 distribution circuit on the secondary side of the mobile transformer at the

Middlesex Substation. Although the installation of the Mobile Substation supplied secure electric service to the 2H2 customers, GMP determined that it was not a desirable solution except on a very temporary basis. Arthur pf. at 2.

3. On April 5, 2004, GMP filed a petition with the Board for a waiver pursuant to 30 V.S.A. § 248(k) to permit GMP, on an emergency basis, to replace the failed transformer at its Middlesex Substation #2 by installing an existing spare three-phase 3.75/5 MVA transformer on a temporary basis on a site adjacent to the Middlesex hydroelectric plant parking lot, rather than replace the transformer at the existing transformer bank. On April 7, 2004, the Board issued an Order in Docket No. 6941 granting the requested waiver ("4/7/04 Order"). Arthur pf. at 2; 4/7/04 Order.

4. Site preparation for that emergency installation required setting 3 poles, one with a push brace, and construction of an earthen berm oil containment enclosure. The temporary 3.75/5 MVA transformer was not placed on temporary timbers because in the course of excavation of the site, a concrete pad was discovered, and that pad was utilized. A cable was buried to connect the low side of the transformer to a pole providing access to the hydroelectric plant bus. The three-phase transformer was placed in service on April 17, 2004, and the oil containment berm was completed on April 30th. Arthur pf. at 2-3.

5. The above-grade height of the new poles are P-216-01, 30 feet; P-216-02, 25 feet; and P-216-03, 35 feet. Arthur supp. pf. at 2.

6. GMP considered, but rejected, the alternative of replacing the failed transformer with a single-phase transformer at the present location of the transformer bank. GMP does not currently have an available single-phase transformer in stock, and GMP estimates that three to six months would be required to obtain a single-phase transformer. Given the vintage of the other two single-phase transformers in the bank, it would be prudent for GMP, if it were to replace one, to replace all three single-phase transformers with a three-phase transformer. Arthur pf. at 3.

7. GMP also considered installation of a three-phase transformer at the current site of the single-phase transformer bank, but determined that the relocation to the site adjacent to the Middlesex Hydroelectric parking lot was preferable for a number of reasons. The present transformer site is difficult to access, the location is not crane accessible, and the site would

require many significant modifications to properly install the three-phase transformer. Installing an improved concrete oil containment facility at that site would be problematical because of the steepness of the slope and the existence of rock ledge. Even if possible, installation of concrete oil containment at the existing site, compared to the relocated site, would involve far more soil disturbance and potential soil erosion. Arthur pf. at 3-4.

8. GMP expects that the three-phase transformer will provide benefits with respect to lowering line losses, but they have not been quantified since the purpose of installing the new three-phase transformer was to resolve the problem of the failing transformer. Arthur pf. at 4.

9. The additional activities and construction, which will be undertaken in connection with the permanent installation of the three-phase transformer, include installation of improved oil containment for the three-phase transformer. Construction of the oil containment facility will require demolition of the existing concrete pad and removal of the transformer during construction. After construction of the concrete oil containment facility, the transformer will be installed approximately one foot higher than at present in order to meet the requirements of the National Electrical Safety Code and Board Rule 3.500. GMP will also install a new chain link fence. GMP will remove the bank of single-phase transformers and their steel support structure. Arthur pf. at 4-5.

10. The new oil containment facility will consist of a concrete basin located directly under the transformer designed to hold the entire volume of oil from the transformer, as well as 500 gallons of rain water. The size of the oil containment facility will be approximately 13 feet by 14 feet, and about 35 inches deep. The oil containment facility will be mostly below grade, with the top one inch of the containment wall above grade. Arthur pf. at 4-5; Arthur supp. pf. at 3.

11. The Project's estimated cost is:

- Temporary installation including mobile installation and testing with required overtime: \$18,000
- Permanent installation including demolition of pad, concrete oil containment, permanent fence, temporarily moving transformer off of the pad: \$35,000
- Replacement transformer cost: \$65,000
- Removal of old transformer bank, disposal, structure removal: \$20,000.

Costs will be accounted for as capital expenditures as appropriate. Arthur pf. at 5.

Orderly Development of the Region

[30 V.S.A. § 248(b)(1)]

12. The Project will not unduly interfere with the orderly development of the region, with due consideration having been given to the recommendations of the municipal and regional planning commissions, the recommendations of the municipal legislative bodies, and the land conservation measures contained in the plan of any affected municipality. Findings 1-10, 13, 14.

13. The Central Vermont Regional Planning Commission waived the 45-day advance notice period required by § 248. Letter dated April 27, 2004, from Susan M. Sinclair, Executive Director, Central Vermont Regional Planning Commission, to Harriet Ann King, Esq., representing GMP.

14. The Moretown Planning Commission waived the 45-day advance notice required by § 248. Letter dated May 10, 2004, from Steven Robbins, Chair, Moretown Planning Commission, to Harriet Ann King, Esq., representing GMP.

Need for Present and Future Demand for Service

[30 V.S.A. § 248(b)(2)]

15. The Project is required to meet the need for present and future demand for service which could not otherwise be provided in a more cost-effective manner through conservation programs and measures and energy efficiency and load-management measures, because such programs and measures do not resolve the problems of a failed transformer. Finding 2; Arthur pf. at 4.

System Stability and Reliability

[30 V.S.A. § 248(b)(3)]

16. The Project, for the reasons discussed above, will enhance and will not adversely affect system stability or reliability. Findings 1-10; Arthur pf. at 7.

Economic Benefit to the State

[30 V.S.A. § 248(b)(4)]

17. Permanent installation of the 3.75/5 MVA transformer to replace a failing bank of single-phase transformers will restore GMP's system stability and reliability, which was adversely impacted by the failing transformer. With the aesthetic and environmental benefits

described below, the Project will result in an economic benefit to the state and its residents. Findings 1-11 above and 25 and 32 below.

Aesthetics, Historic Sites, Air and Water Purity,
the Natural Environment and Public Health and Safety

[30 V.S.A. § 248(b)(5)]

18. The Project will not have an undue adverse effect on aesthetics, historic sites, air and water purity, the natural environment and the public health and safety. This finding is supported by Findings 1 through 10 above and Findings 19 through 35 below, which are based on the criteria specified in 10 V.S.A. §§ 1424(a)(d) and 6086(a)(1) through (8), and (9)(K).

Outstanding Resource Waters

[10 V.S.A. § 1424a(d)]

19. There are no watercourses in the vicinity of the Project that have been designated as outstanding resource waters. Arthur pf. at 6.

Water and Air Pollution

[10 V.S.A. § 6086(a)(1)]

20. The Project will not produce any emissions or waste and, accordingly, will not result in undue water and air pollution. Arthur pf. at 6. This finding is also supported by the specific findings under the criteria 6086(a)(1)(A) through (G).

Headwaters

[10 V.S.A. § 6086(a)(1)(A)]

21. The Project will not have an undue adverse impact on any headwaters. Arthur pf. at 6; exh. GMP-MLA-6.

Waste Disposal

[10 V.S.A. § 6086(a)(1)(B)]

22. Normal operation of the permanent 3.75/5 MVA transformer will not result in the production of any wastes, will meet all applicable health and Environmental Conservation Department regulations for the disposal of wastes, and will not involve the injection of waste materials or any harmful or toxic substances into ground water or wells. The construction of the concrete oil containment facility will provide better protection than the existing berm against

pollution from a potential oil spill and the three-phase transformer contains substantially less oil than the previously utilized single-phase transformers. Arthur pf. at 6.

Discussion

The prefiled testimony of Michael L. Arthur at page 5 states that the three existing single-phase 1.333 MVA transformers and their steel support structure will be removed, but does not describe the disposal methods for the oil-filled transformers and the support structure. Consequently, prior to the removal of the transformers and support structure, we will require GMP to file, for our approval, a plan for the disposal of the three single-phase 1.333 MVA transformers and their steel support structure. This compliance filing requirement is set forth as Condition 3 of this Order and of the CPG.

Water Conservation

[10 V.S.A. § 6086(a)(1)(C)]

23. The Project will not utilize water during or after construction, and, accordingly, the criteria specified in 10 V.S.A. § 6086(a)(1)(C) relating to water conservation is inapplicable. Arthur pf. at 6.

Floodways

[10 V.S.A. § 6086(a)(1)(D)]

24. The Project is not located on a floodway. Arthur pf. at 6.

Streams

[10 V.S.A. § 6086(a)(1)(E)]

25. The Winooski River is located approximately 175 feet from the relocated site. Although the old bank of transformers was located approximately 275 feet from the river, installation of the concrete oil containment basin under the three-phase transformer at the new site will provide better protection to the Winooski River from any potential oil spill. Construction of a concrete oil containment facility is more feasible at the new site than at the old transformer bank site because of the steep slope and rock ledge at the old site. The greater accessibility of the new site will facilitate any work required to resolve any problems of spillage in the future. In addition, the new site is seen everyday by personnel going into and out of the

Middlesex hydroelectric plant and, accordingly, any problems are likely to be promptly discovered. Finding 6 above; Arthur pf. at 3-4 and 6; exhs. A-6, GMP-MLA-1 through 5.

Shorelines

[10 V.S.A. § 6086(a)(1)(F)]

26. Although the Project will be located within 175 feet of the Winooski River shoreline, the shoreline will not be impacted by the Project. Arthur pf. at 6; exhs. A-6, GMP-MLA-1 through 5; finding 29.

Wetlands

[10 V.S.A. § 6086(a)(1)(G)]

27. The Project will not impact any wetlands. Arthur pf. at 6; exhs. A-6, GMP-MLA-1 through 5.

Sufficiency of Water and Burden on

Existing Water Supply

[10 V.S.A. § 6086(a)(2) and (3)]

28. The Project does not require water to function, and so will not use any significant amounts of water and will not place a burden on any existing water supply. Arthur pf. at 6.

Soil Erosion

[10 V.S.A. § 6086(a)(4)]

29. The Project involves the disturbance of soils for the installation of the improved oil containment facility. GMP will use appropriate soil erosion measures during construction of the oil containment facility. Accordingly, the Project will not result in unreasonable soil erosion or reduction in the capacity of the land to hold water so that a dangerous or unhealthy condition may result. Arthur pf. at 5; exh. GMP-MLA-1.

Transportation System

[10 V.S.A. § 6086(a)(5)]

30. Because the Project is located adjacent to the existing parking lot at the Middlesex hydroelectric plant and involves a replacement of a failing transformer, the Project will not cause unreasonable congestion or unsafe conditions with respect to the use of highways, waterways,

railways, airports and airways and other means of transportation existing or proposed. Arthur pf. at 5-6.

Educational Services

[10 V.S.A. § 6086(a)(6)]

31. The Project is unrelated to, and therefore will not cause any burden on, the ability of any municipality to provide educational services. Arthur pf. at 1-6.

Municipal Services

[10 V.S.A. § 6086(a)(7)]

32. The Project will not require any municipal or governmental services. Arthur pf. at 6.

**Scenic and Natural Beauty, Aesthetics, Historic Sites
and Rare and Irreplaceable Natural Areas**

[10 V.S.A. § 6086(a)(8)]

33. The Project will not have an undue adverse effect on the scenic or natural beauty of the area, aesthetics, historic sites, or rare and irreplaceable natural areas. The new location of the three-phase transformer will be less visible from Route 100B and one three-phase transformer will be smaller and less visually obtrusive than three single-phase transformers. In addition, the highly visible steel support structure at the current site will be removed. Although the relocation required setting three poles, one with a push brace, they are less visible from Route 100B than the steel support structure. Arthur pf. at 5; exhs. A, GMP-MLA-1 through 5; applicable Findings below and above.

Discussion

Based on the above findings, the Board finds that the proposed Project will not have an undue adverse effect on the aesthetics or scenic and natural beauty of the area. In reaching this conclusion, the Board has relied on the Environmental Board's methodology for determination of "undue" adverse effects on aesthetics and scenic and natural beauty as outlined in the so-called Quechee Lakes decision. Quechee Lakes Corporation, #3W0411-EB and 3W0439-EB, dated January 13, 1986.

As required by this decision, it is first appropriate to determine if the impact of the Project will be adverse. The Project would have an adverse impact on the aesthetics of the area if

its design is out of context or not in harmony with the area in which it is located. If it is found that the impact would be adverse, it is then necessary to determine that such an impact would be "undue." Such a finding would be required if the Project violates a clear written community standard intended to preserve the aesthetics or scenic beauty of the area, if it would offend the sensibilities of the average person, or if generally available mitigating steps would not be taken to improve the harmony of the Project with its surroundings. The Board's assessment of whether a particular project will have an "undue" adverse effect based on these standards should be significantly informed by the overall societal benefits of the project.¹

The proposed Project will not have an adverse effect on the aesthetics of the area. The Project involves the permanent installation of a transformer, which already exists in temporary fashion at the location of its proposed permanent installation between an existing hydroelectric facility and an existing substation. Due to its location down a steep slope from Route 100B, the transformer will be much less visible than the existing three single-phase transformers it will replace. For these reasons, the proposed transformer location will not be out of context or out of harmony with the area in which it is located. Furthermore, the removal of the existing bank of three single-phase transformers and their steel support structure, which are closer to, and much more visible from, Route 100B, will be an aesthetic improvement.

Even if the Project did have an adverse aesthetic impact, such impact would not be undue. The Project does not violate a clear, written community standard, is not shocking or offensive, and this Project would not require mitigation because the visual appearance of the substation will be improved by the removal of the existing bank of three single-phase transformers and associated support structure, which are visible from Route 100B. The Moretown Planning Commission and the Central Vermont Regional Planning Commission were notified of the proposed Project and did not recommend any changes to the proposal. Because all construction takes place within or adjacent to an existing substation and an existing hydroelectric facility, its presence will not be shocking, and will not offend the sensibilities of the average person

1. Docket 6884, Order of 4/21/04 at 20-21.

Necessary Wildlife Habitat and Endangered Species

[10 V.S.A. § 6086(a)(8)]

34. Because of its location at a developed area next to the parking lot for the Middlesex hydroelectric plant, the Project will not significantly destroy or significantly imperil necessary wildlife habitat or any endangered species. Arthur pf. at 6; exhs. A, GMP-MLA-1 through 5.

Development Affecting Public Investments

[10 V.S.A. § 6086(a)(9)(K)]

35. The Project will not unnecessarily or unreasonably endanger the public or quasi-public investment in the facilities listed in 10 V.S.A. § 6086(a)(9)(K), or materially jeopardize or interfere with the function, efficiency, or safety of, or the public's use or enjoyment of or access to such facilities. Arthur pf. at 1-6.

Least-Cost Plan

[30 V.S.A. § 248(b)(6)]

36. Based on Findings 1-10 above, the Project is consistent with the principles for resource selection expressed in GMP's approved least-cost Integrated Resource Plan.

Compliance with Electric Energy Plan

[30 V.S.A. § 248(b)(7)]

37. The Project is consistent with the Vermont Twenty-Year Electric Plan. The Department of Public Service has issued a determination dated August 5, 2004, to that effect in accordance with 30 V.S.A. § 202(f).

Outstanding Water Resources

[30 V.S.A. § 248(b)(8)]

38. No waters of the state that might be designated as Outstanding Resource Waters will be affected by the Project. See Finding 19 above.

Existing or Planned Transmission Facilities

[30 V.S.A. § 248(b)(10)]

39. The criterion relating to whether the Project can be served economically by existing or planned transmission facilities without undue adverse effect on Vermont utilities or customers is inapplicable because the Project is the replacement of three single-phase transformers, one of

which is failing, with a similar-sized three-phase transformer on the existing transmission system. Findings 1-10 above.

III. CONCLUSION

Based upon all of the above evidence, we conclude that the proposed construction will be of limited size and scope; the petition does not raise a significant issue with respect to the substantive criteria of 30 V.S.A. § 248; the public interest is satisfied by the procedures authorized by 30 V.S.A. § 248(j); and the proposed Project will promote the general good of the state.

IV. ORDER

IT IS HEREBY ORDERED, ADJUDGED AND DECREED by the Public Service Board of the State of Vermont that the proposed modifications, in accordance with the evidence and plans presented in this proceeding, will promote the general good of the State of Vermont in accordance with 30 V.S.A. Section 248, and a certificate of public good shall be issued in the matter, subject to the following conditions:

1. Construction and operation of the project shall be in accordance with the plans and evidence submitted in this proceeding.
2. All construction authorized in this proceeding shall be performed in accordance with the Vermont Agency of Natural Resources's "Vermont Handbook for Erosion Prevention and Sediment Control." At a minimum, sedimentation and erosion control measures shall be employed as shown on Exh. GMP-MLA-1.
3. Prior to removal of the three existing single-phase 1.333 MVA transformers and their steel support structure, GMP shall submit, for our approval, a plan which describes the disposal methods for all construction waste removed from the site, including the three existing single-phase transformers, their oil, and their steel support structure. The parties in this proceeding will have five (5) business days from the filing date of the disposal plan to comment on the plan. GMP shall not remove the three existing single-phase transformers and their steel support structure until the Board has approved the disposal plan.
4. The Certificate of Public Good shall not be transferred without prior approval of the Board.

SO ORDERED.

Dated at Montpelier, Vermont this 9th day of August, 2004.

<u>s/Michael H. Dworkin</u>)	
)	PUBLIC SERVICE
)	
<u>s/David C. Coen</u>)	BOARD
)	
)	OF VERMONT
<u>s/John D. Burke</u>)	

OFFICE OF THE CLERK

FILED: August 9, 2004

ATTEST: s/Judith C. Whitney
Deputy Clerk of the Board

Notice to Readers: This decision is subject to revision of technical errors. Readers are requested to notify the Clerk of the Board (by e-mail, telephone, or in writing) of any apparent errors, in order that any necessary corrections may be made. (E-mail address: Clerk@psb.state.vt.us)

Appeal of this decision to the Supreme Court of Vermont must be filed with the Clerk of the Board within thirty days. Appeal will not stay the effect of this Order, absent further Order by this Board or appropriate action by the Supreme Court of Vermont. Motions for reconsideration or stay, if any, must be filed with the Clerk of the Board within ten days of the date of this decision and order.